

REMARKS

Claims 1 – 6 and 26 – 57 have been withdrawn from consideration. Claim 8 is cancelled.  
Claims 7 – 25 and 58 – 64 are pending.

The Examiner rejected claim 7 under 35 U.S.C. 103(a) as being unpatentable over Yoshida (Patent Abstracts of Japan, Publication No. 61-068514) in view of DeSanto (U.S. Patent No. 4,728,885). Particularly, the Examiner asserted that the Yoshida abstract discloses every claim limitation except for “installing the suitable electronic components into electronic assemblies,” which is disclosed by DeSanto. The Examiner further suggested that it would be obvious to combine the Yoshida abstract with DeSanto to obtain the claimed method. Applicant has obtained an informal translation of the Yoshida patent, and hereby submits it for the Examiner’s consideration and reference. Applicant has also amended claim 7 to emphasize the distinguishing features discussed herein. Applicant respectfully asserts that claim 7 is now in condition for allowance.

Claim 7, as amended, recites an improved method of evaluating the suitability of electronic components for exposure to conditions associated with reflow, a manufacturing process used to secure electronic components to printed circuit boards. During reflow, an electronic component is typically exposed to elevated temperatures, which can cause any moisture that may be trapped within the electronic component to expand rapidly, for example. This rapid expansion of moisture can result in damage to the electronic component. Such damage may, in certain instances, be immediately apparent. However, in other instances, the damage may remain undetected until after the printed circuit board containing the damaged component has been installed into some end product, for example, a personal computer or an industrial control system, and been put into operation. The potential for catastrophic consequences in such instances is very real.

Significantly, the teachings of claim 7 may minimize the occurrence of the unsavory consequences discussed above by providing a method to evaluate, prior to installation, whether each electronic component is suitable for exposure to the potentially harmful conditions

associated with reflow discussed above. Particularly, the method may provide assurance, prior to installation, that the electronic component has not been exposed to potentially undesirable environmental conditions, such as excessive atmospheric moisture content, which might render the component susceptible to being damaged during reflow, as outlined above. Claim 7 now recites, “collecting data indicative of an environmental condition . . . prior to installing the electronic components . . . by reflow . . . evaluating whether the electronic components are suitable for exposure to reflow conditions . . . then, for components found suitable . . . installing [the components] using reflow.”

The Yoshida patent merely discloses a device that enables automatic measurement of “changes in the environment such as encountered by [an] article in the distribution process.” It is well known that some products encounter extreme environmental conditions after assembly, during distribution by truck or rail, for example, and Yoshida appears to be concerned with measuring such exposures. The Yoshida patent repeatedly uses very broad terms, such as “product” and “article” to describe what is being monitored. As such, the Yoshida patent clearly fails to appreciate the specific problem and potentially disastrous implications associated with exposing moisture-laden electronic components to reflow conditions. As discussed above, reflow is a manufacturing/assembly process, not a distribution process. Accordingly, the invention recited in claim 7 is neither disclosed nor suggested by Yoshida.

Additionally, the Examiner indicated that “DeSanto discloses [for] electronic components [20] found suitable for installation, installing the suitable electronic components into electronic assemblies [such as AC outlets of customers site].” Applicant disagrees with this characterization of DeSanto for the following reasons. First, DeSanto’s manufacturer’s equipment/electronic devices 20 are neither equivalent to nor similar to the “electronic components” recited by claim 7. Referring to column 1, lines 50 – 53, DeSanto explains that “electronic devices . . . might include . . . personal computers, electronic analytical instruments, etc.” In contrast, referring to FIG. 7, and the associated text on page 17, lines 1 – 10, the term “electronic components,” as recited in claim 7, can include, inter alia, “SMDs (surface mount devices)” of various materials. Significantly, one of ordinary skill in the art would not consider

personal computers, electronic analytical instruments as being susceptible to damage during reflow, because these devices are never subjected to reflow conditions. Similarly, Applicant asserts that the phrase “electronic assemblies” as used in claim 7 is neither equivalent nor similar to the phrase “AC outlets at customer sites” as used in DeSanto.

For at least these reasons, Applicant respectfully asserts that claim 7 is neither taught nor suggested by the combination of the Yoshida abstract in view of DeSanto. Neither Yoshida nor Desanto provide the concept of evaluating suitability of electronic components for reflow, based on environmental exposure. Accordingly, Applicant respectfully requests withdrawal of this rejection and allowance of claim 7.

The Examiner also rejected claims 8 – 11 and 23 – 25 under 35 U.S.C. 103(a) as being unpatentable over the Yoshida abstract in view of DeSanto. Since claims 8 – 11 and 23 – 25 depend from claim 7, they should be allowable for at least the same reasons as claim 7. Accordingly, Applicant respectfully requests withdrawal of these rejection and allowance of claims 8 – 11 and 23 - 25.

The Examiner also rejected claim 12 as being unpatentable over the Yoshida abstract in view of DeSanto and in further view of Tow (U.S. Patent No. 6,560,839). Applicant respectfully disagrees with the basis for this rejection. First of all, claim 12 depends from claim 7. In rejecting claim 12, the Office Action relies on the combination of Yoshida and DeSanto as disclosing all of the elements recited in claim 7. As discussed above, Applicant asserts that the combination of Yoshida and DeSanto neither teaches nor suggests the elements recited in claim 7. Applicant therefore asserts that claim 12 should be allowable for at least the same reason discussed above, regarding claim 7.

Although claim 12 should be allowable solely based on the above discussion, Applicant further disagrees with the basis for this rejection. Specifically, the Examiner’s assertion that the recited limitation “estimating a remaining floor life associated with the electronic components” is obvious in view of Tow is improper. Referring to column 1, lines 35 – 38, Tow discloses only method of protecting “moisture-sensitive components from undesirably high moisture exposure during back-end testing after burn-in” by using a sealed container with desiccant. Nowhere does

Tow either teach, suggest or even mention “estimating a remaining floor life associated with the electronic components,” as recited in claim 12. Accordingly, Applicant asserts that the limitation “estimating a remaining floor life associated with the electronic components” is not obvious in view of Tow.

Moreover, the claim 12 rejection also appears to be improper on other grounds. Specifically, the Examiner stated that “Tow discloses electronic component (sic) and suggests providing customers with a component having a maximum floor life. Hence, estimating a remaining floor life is obvious to Tow.” Applicant understands this argument to be as follows. Since Tow teaches the desirability of providing customers with components having a maximum floor life, it would therefore be obvious to one of skill in the art to estimate “a remaining floor life associated with the electronic components.” If Applicant’s understanding is correct, Applicant respectfully points out, that reliance on what is *presumed* to be the level of knowledge of one of ordinary skill in the art cannot “act as a bridge over gaps in substantive presentation of an obviousness case.” *Al-Site Corp. v. VSI International, Inc.*, 174 F.3d 1308, 24 (Fed. Cir. 1999). Here, there is clearly a gap between the notion that providing customers with components having a maximum floor life is desirable, as taught by Tow and “estimating a remaining floor life associated with the electronic components” as recited by claim 12. It appears that the Examiner is trying to bridge that gap with a presumption about the level of ordinary skill in the art. Because such presumptions are improper, Applicant respectfully requests reconsideration and withdrawal of this claim 12 rejection.

For each of the reasons outlined above, Applicant asserts that claim 12 should be allowable. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

The Examiner also rejected claims 13 – 22 under 35 U.S.C. 103(a) as being unpatentable over the Yoshida abstract in view of DeSanto and in further view of Tow. Since claims 13 - 22 depend from claims 7 & 12, they should be allowable for at least the same reasons as claims 7 & 12. Accordingly, Applicant respectfully requests withdrawal of these rejection and allowance of claims 13 - 22.

The Examiner also rejected claim 58 under 35 U.S.C. 103(a) as being unpatentable over the Yoshida abstract in view of DeSanto. Applicant has amended claim 58 in a similar way as claim 7 is being amended. Specifically, claim 58 now emphasizes that the computer-readable medium stores instructions such as might enable a computer to provide assurance that, prior to exposure to potentially damaging reflow conditions, electronic components have not been exposed to excessive ambient moisture content, which might render the component susceptible to being damaged during reflow, as discussed in detail above. For at least this reason, and the reasons discussed above with reference to claim 7, Applicant asserts that claim 58 is now in condition for allowance. Accordingly, Applicant respectfully requests withdrawal of this rejection and allowance of claim 58.

The Office Action also rejected claims 59 - 64 as being unpatentable over the Yoshida abstract in view of DeSanto and in further view of Tow (U.S. Patent No. 6,560,839). Applicant disagrees. Claims 59 - 64 depend either directly or indirectly from claim 58. In rejecting claims 59 - 64, the Office Action relies on the combination of Yoshida and DeSanto as disclosing all of the elements recited in claim 58. Applicant asserts that claims 59 – 64 should therefore be allowable for at least the same reason discussed above, regarding claim 58.

Applicant respectfully asserts that each of claims 7 – 25 and 58 – 64 are now in condition for allowance and respectfully requests such action.

Enclosed is a \$55 check for the One-Month Petition for Extension of Time fee. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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